UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,257	10/20/2003	Mark Beaumont	DB001070-000	2891

24122 7590 05/15/2006

THORP REED & ARMSTRONG, LLP
ONE OXFORD CENTRE
301 GRANT STREET, 14TH FLOOR
PITTSBURGH, PA 15219-1425

EXAMINER	
HUISMAN, DAVID J	

ART UNIT	PAPER NUMBER
2183	

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/689,257	BEAUMONT, MARK	
	Examiner	Art Unit	
	David J. Huisman	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 October 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/20/03 & 1/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-26 have been examined.

Papers Submitted

2. It is hereby acknowledged that the following papers have been received and placed of record in the file: Preliminary Amendment and IDS as received on 10/20/2003, IDS as received on 1/7/2004, Foreign Priority Papers as received on 3/15/2004, Preliminary Amendment as received on 10/12/2004, and Power of Attorney as received on 10/12/2004.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiner recommends incorporating specifics on how the data is transposed.

4. The disclosure is objected to because of the following informalities:

- On page 2, paragraph [0007], line 3, replace "arrays" with --array.
- On page 12, line 1, replace "form" with --from--.

Appropriate correction is required.

Drawings

5. Fig.2, Fig.5, and Figs.6A-10B are not of sufficient quality to permit examination. Fig.2 and Figs.6A-10B include letters/numbers which are difficult to read, and Fig.5 should be enlarged, as there is text on some of the components which is unreadable. Accordingly,

replacement drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to this Office action. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Applicant is given a TWO MONTH time period to submit new drawings in compliance with 37 CFR 1.81. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a). Failure to timely submit replacement drawing sheets will result in ABANDONMENT of the application.

6. The drawings are objected to because of the following minor informalities:

- From the description of Fig.14A in the specification, it appears that there should not be a diagonal arrow emanating from element 11. Should the diagonal instead be emanating from element 13?
- In Fig.19E, it is not clear why the counts are set to 0 to 7. Should they instead be set to -1 to 6?

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the shifting of data along diagonals of the processing elements until the processing elements in the diagonal have received the data held by every other processing element in that diagonal (claim 1) must be shown (or must be clearly shown) or the feature(s) canceled from the claim(s). The examiner has been unable to find any figure showing shifting of data along as diagonal. Instead, all the examiner is able to see is the shifting of data to the east. (Fig.17A-H). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-10 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. Regarding claims 1 and 26, applicant has not enabled one of ordinary skill in the art to perform a transpose operation on an array by shifting data along diagonals in the array of processing elements until the elements in the diagonal have received the data held by every other processing element in that diagonal. That is, the examiner does not understand how every element in a given diagonal can receive data held by every other element in that diagonal. It is not clear if applicant is rotating an entire diagonal (if so, it is not clear how a transpose can be performed while allowing each element to receive data held by every other element in the diagonal), if applicant is shifting particular elements in a diagonal (in which case, each element in the diagonal will not receive data held by every other element in the diagonal), or if applicant

is rotating rows and columns to obtain the transpose (if so, it is once again not clear how each element in the diagonal will receive data held by every other element in the diagonal). The examiner feels that the specification and drawings have not enabled one of ordinary skill in the art to make/use this invention. There is nothing that explains how diagonal elements receive data from every other diagonal element, and if applicant does believe that such disclosure exists, then it should be pointer out and clearly illustrated (see the above drawing objections).

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 1 recites the limitation "the diagonal" in line 3. There is insufficient antecedent basis for this limitation in the claim because applicant previously claims "diagonals".

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 9-11, 19-20, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanounik et al., "Linear-Time Matrix Transpose Algorithms Using Vector Register File With Diagonal Registers," 2001 (herein referred to as Hanounik).

16. Referring to claim 1, Hanounik has taught a method for transposing data in a plurality of processing elements, comprising:

a) shifting the data along diagonals of the plurality of processing elements until the processing elements in the diagonal have received the data held by every other processing element in that diagonal. See Fig.1, for instance, and note that data is shifted along at least two diagonals where each processing element in a diagonal receives data held by every other element in that diagonal. For instance, a first diagonal would be the diagonal in the original matrix having a first element holding value 12 and another element holding value 21. After shifting the first element holds 21 and the second element holds 12 (i.e. each element in the diagonal holds data held by the other element in the diagonal).

b) selecting data as final output data based on a processing element's position. Clearly, looking at Fig.1, the element that originally holds value 12 should hold value 21 at the end of the transpose. When it finally does, value 21 is outputted as the final data in the transpose.

17. Referring to claim 9, Hanounik has taught a method as described in claim 1. Hanounik has further taught that said shifting includes a combination of vertical and horizontal shifting. See Fig.1, and note, for example, that 21 ends up at a location one column over (horizontal shift) and one row up (vertical shifting) from its original location.

18. Referring to claim 10, Hanounik has taught a method as described in claim 1. Hanounik has further taught that said shifting includes a combination of shifting in the x and z directions.

See Fig.1, and note, for example, that the value 21 ends up at a location one column over (horizontal/x shift) and one row up (vertical/z shifting) from its original location. Horizontal and vertical (and x and z) are perpendicular directions (they form right angles with one another).

19. Referring to claim 11, Hanounik has taught a method for transposing data in an array of processing elements, comprising:

a) shifting the data along diagonals in the array a number of times equal to N-1 where N equals the number of processing elements in a diagonal. See Fig.1, for instance, and note that data is shifted along at least two diagonals. For instance, a first diagonal would be the diagonal in the original matrix having a first element holding value 12 and another element holding value 21. After shifting the first element holds 21 and the second element holds 12 (i.e. each element in the diagonal holds data held by the other element in the diagonal). In this example, there are 2 elements (N=2), and one (N-1) shift occurs. Note the single arrow between the two elements in Fig.1. This means that one shift (swap is occurring).

b) outputting data from each processing element as a function of that element's position in a diagonal. Clearly, looking at Fig.1, the element that originally holds value 12 should hold value 21 at the end of the transpose. When it finally does, value 21 is outputted as the final data in the transpose.

20. Referring to claim 19, Hanounik has taught a method as described in claim 11. Hanounik has further taught that said shifting includes a combination of vertical and horizontal shifting. See Fig.1, and note, for example, that the 21 ends up at a location one column over (horizontal shift) and one row up (vertical shifting) from its original location.

21. Referring to claim 20, Hanounik has taught a method as described in claim 11. Hanounik has further taught that said shifting includes a combination of shifting in perpendicular directions. See Fig.1, and note, for example, that the value 21 ends up at a location one column over (horizontal shift) and one row up (vertical shifting) from its original location. Horizontal and vertical are perpendicular directions (they form right angles with one another).

22. Referring to claim 26, Hanounik has taught a memory device carrying an ordered set of instruction which, when executed, perform a method (note that this is deemed inherent) comprising:

a) shifting the data along diagonals of the plurality of processing elements until the processing elements in the diagonal have received the data held by every other processing element in that diagonal. See Fig.1, for instance, and note that data is shifted along at least two diagonals where each processing element in a diagonal receives data held by every other element in that diagonal. For instance, a first diagonal would be the diagonal in the original matrix having a first element holding value 12 and another element holding value 21. After shifting the first element holds 21 and the second element holds 12 (i.e. each element in the diagonal holds data held by the other element in the diagonal).

b) selecting data as final output data based on a processing element's position. Clearly, looking at Fig.1, the element that originally holds value 12 should hold value 21 at the end of the transpose. When it finally does, value 21 is outputted as the final data in the transpose.

23. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

24. Claims 21-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Apisdorf et al., U.S. Patent No. 6,968,447 (herein referred to as Apisdorf).

25. Referring to claim 21, Apisdorf has taught a method for transposing data in a plurality of processing elements, comprising:

a) shifting data between processing elements arranged in diagonals. See Fig.3, 4A, 4B, and 6, column 13, lines 4-19, and column 14, lines 9-28. Note that elements are arranged in diagonals (i.e., as an array), and data is passed among them.

b) setting an initial count in each processing element according to one of the expressions: (x+y+1)MOD(array size), (C+R+1)MOD(array size), (C+y+1)MOD(array size), or (x+R+1)MOD(array size). See column 13, lines 4-19, and column 14, lines 9-28. Each element has a counter which may be initialized to some value being zero or greater, which indicates the amount of code sections to process. No matter the initial value, it would meet the mod conditions set forth above. For instance, if the array size is 8, as in Fig.4A, and the counter is set to zero, then we can take x=0 and y=-1 so that we get 0 mod 8, which is zero (the initial value is zero). It should be noted that applicant has not defined x, y, C, and R, so they can be assigned any values.

c) modifying the initial count by a programmable amount and at programmable intervals to produce a current count. See column 13, lines 4-19, and column 14, lines 9-28, and note that after each section is processed, the counter is decremented. So it is decremented by a

programmable amount (1), and at a programmable interval (the amount of time to process a given section).

d) selecting output data as a function of said current count. For as long as the counter is greater than zero, the element will execute instructions, which inherently produces output.

26. Referring to claim 22, Apisdorf has taught a method as described in claim 21. Apisdorf has further taught that said modifying includes counting down from said initial count. See column 13, lines 6-9.

27. Referring to claim 23, Apisdorf has taught a method as described in claim 22. Apisdorf has further taught that said selecting occurs when said current count is a non-positive value. See column 13, lines 6-9, and note that when the counter reaches 0 (non-positive), then the section that was executed to produce that non-positive value will produce data to be selected as output.

28. Referring to claim 24, Apisdorf has taught a method as described in claim 21. Apisdorf has further taught that said shifting includes a combination of vertical and horizontal shifting. See Fig.4A, 4B, and 6, and note that PEs are connected horizontally and vertically for data transfer.

29. Referring to claim 25, Apisdorf has taught a method as described in claim 21. Apisdorf has further taught that said shifting includes a combination of horizontal shifting. See Fig.4A, 4B, and 6, and note that PEs are connected. Looking at the connections, it can be seen that data may be passed east/west and north/south. Both of these can be looked at as horizontal shifting. North/south can be horizontal shifting because data is sent from one horizontal row to another, and east/west shifting is horizontal shifting because data is sent from an element to an element horizontal to that element.

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31. Claims 2-8 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanounik, as applied above, in view of Apisdorf, as applied above.

32. Referring to claim 2, Hanounik has taught a method as described in claim 1. Hanounik has not explicitly taught one of loading an initial count into each processing element and calculating an initial count locally based on the processing element's location, said selecting being responsive to said initial count. However, Apisdorf has taught loading each element with an initial count, said selecting being responsive to said initial count. See column 13, lines 4-19, and column 14, lines 9-28. Each element has a counter which may be initialized to some value being zero or greater, which indicates the amount of code sections to process. Data will be selected for processing based on the counter. Such a counter allows for synchronization between processing elements. See column 13, line 45, to column 14, line 8. As a result, in order to ensure synchronized communication between processing elements, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hanounik to include a counter taught by Apisdorf.

33. Referring to claim 3, Hanounik in view of Apisdorf has taught a method as described in claim 2. Apisdorf has further taught that said plurality of processing elements is arranged in an

array and said initial count is given by one of the following expressions: (x+y+1)MOD(array size) (C+R+1)MOD(array size) (C+y+1)MOD(array size) or (x+R+1)MOD(array size). See column 13, lines 22-28. Note that the starting element's counter may be set to 1. If the starting element is the element in the 0^{th} row and 0^{th} column (top left element in the array shown in Fig.4A), then the initial value satisfies (C+R+1)MOD(array size), where R=0, C=0, and array size =8. This yields a count of 1. Also, no matter the initial value, it would meet the mod conditions set forth above. For instance, if the array size is 8, as in Fig.4A, and the counter is set to zero, then we can take x=0 and y=-1 so that we get 0 mod 8, which is zero (the initial value is zero). It should be noted that applicant has not defined x, y, C, and R, so they can be assigned any values.

34. Referring to claim 4, Hanounik in view of Apisdorf has taught a method as described in claim 2. Apisdorf has further taught maintaining a current count in each processing element, said current count being responsive to said initial count and the number of data shifts performed, said selecting being responsive to said current count. See column 13, lines 4-19, and column 14, lines 9-28. Counts are decremented based on the original count value each time data is shifted (and processed).

35. Referring to claim 5, Hanounik in view of Apisdorf has taught a method as described in claim 4. Apisdorf has further taught that said maintaining a current count includes altering said initial count at programmable intervals by a programmable amount. See column 13, lines 4-19, and column 14, lines 9-28, and note that after each section is processed, the counter is decremented. So it is decremented by a programmable amount (1), and at a programmable interval (the amount of time to process a given section).

36. Referring to claim 6, Hanounik in view of Apisdorf has taught a method as described in claim 4. Apisdorf has further taught that said initial count is decremented in response to said shifting of data to produce said current count. See column 13, lines 6-9.

37. Referring to claim 7, Hanounik in view of Apisdorf has taught a method as described in claim 4. Apisdorf has further taught that said selecting occurs when said current count is non-positive. See column 13, lines 6-9, and note that when the counter reaches 0 (non-positive), then the section that was executed to produce that non-positive value will produce data to be selected as output.

38. Referring to claim 8, Hanounik in view of Apisdorf has taught a method as described in claim 4. Hanounik has not taught maintaining a local count including setting a counter to a first known value, and counting up from said first known value based on the number of shifts that have been performed, said selecting occurring when a current count equals a target count. However, Apisdorf has taught such a concept. See column 14, lines 9-28. Each element has a counter which may be initialized to some value being zero or greater, which indicates the amount of code sections to process. Data will be selected for processing based on the counter. Such a counter allows for synchronization between processing elements. See column 13, line 45, to column 14, line 8. As a result, in order to ensure synchronized communication between processing elements, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hanounik to include a counter taught by Apisdorf.

39. Referring to claim 12, Hanounik has taught a method as described in claim 11. Furthermore, claim 12 is rejected for the same reasons set forth in the rejection of claim 2.

40. Referring to claim 13, Hanounik in view of Apisdorf has taught a method as described in claim 12. Furthermore, claim 13 is rejected for the same reasons set forth in the rejection of claim 3.

41. Referring to claim 14, Hanounik in view of Apisdorf has taught a method as described in claim 12. Furthermore, claim 14 is rejected for the same reasons set forth in the rejection of claim 4.

42. Referring to claim 15, Hanounik in view of Apisdorf has taught a method as described in claim 14. Furthermore, claim 15 is rejected for the same reasons set forth in the rejection of claim 5.

43. Referring to claim 16, Hanounik in view of Apisdorf has taught a method as described in claim 14. Furthermore, claim 16 is rejected for the same reasons set forth in the rejection of claim 6.

44. Referring to claim 17, Hanounik in view of Apisdorf has taught a method as described in claim 16. Furthermore, claim 17 is rejected for the same reasons set forth in the rejection of claim 7.

45. Referring to claim 18, Hanounik in view of Apisdorf has taught a method as described in claim 12. Furthermore, claim 18 is rejected for the same reasons set forth in the rejection of claim 8.

Conclusion

46. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the

patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and the objections made. Applicant must also show how the amendments avoid such references and objections. See 37 CFR § 1.111(c).

Choi et al., "Parallel Matrix Transpose Algorithms On Distributed Memory Concurrent Computers," 1993, has taught multiple transpose algorithms where data is shifted diagonally.

Ho, U.S. Patent No. 5,644,517, has taught a method for performing matrix transposition on a mesh multiprocessor architecture having multiple processor with concurrent execution of the multiple processors.

Hanounik, U.S. Patent Application Publication Number 2003/0084081, has taught a method and apparatus for transposing a two dimensional array using diagonal registers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Huisman whose telephone number is (571) 272-4168. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DJH
David J. Huisman
April 17, 2006

EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100